1: Conzemius M-4, 5 (1921) 1932
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them. White thread and small needles (M.: *silak;* T., P.: *silip;* U.: *akusa,* from Spanish "aguja") of foreign manufacture are employed to string the beads.

NAVIGATION AND CANOE MAKING

Travel is effected chiefly by canoe, for there are hardly any roads in the country outside of the hunting trails; the numerous navigable rivers intersecting the country form, together with the lagoons and the sea, the means of communication.

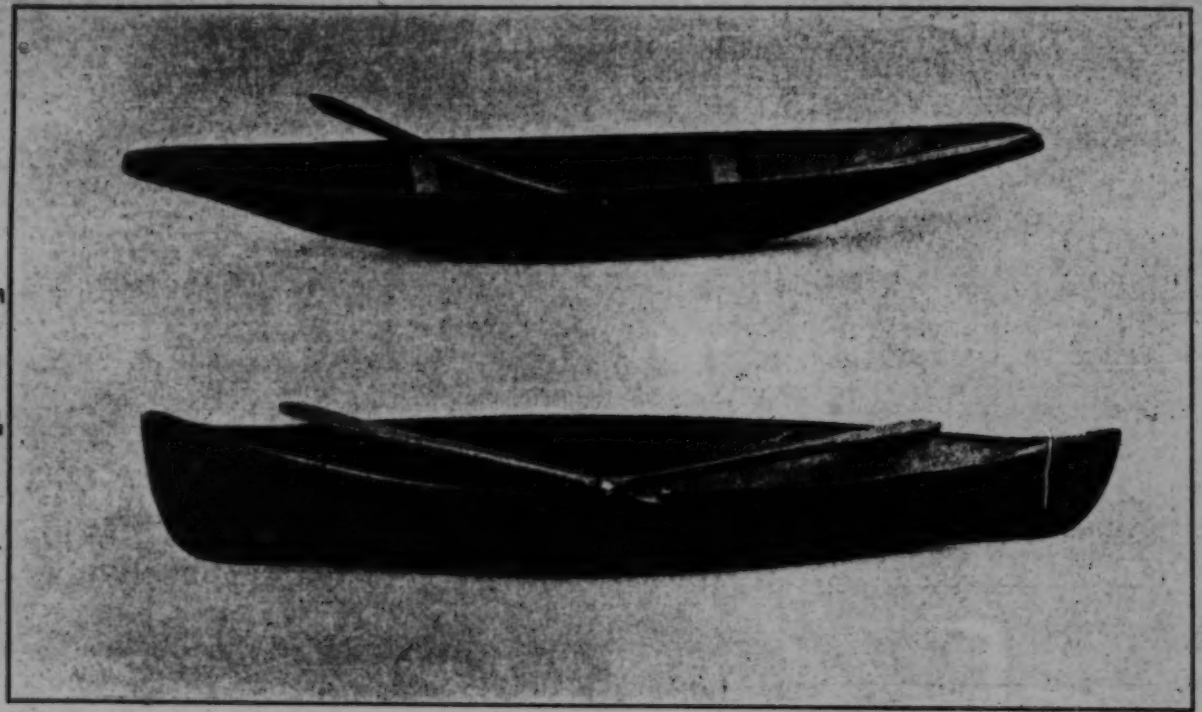
The Miskito inhabiting the immediate seashore from Cabo Gracias a Dios on southward are excellent seamen; they were already noted for their courage on the sea by the buccaneers (Raveneau de Lussan: 440). The Miskito living to the north of that settlement, however, navigate the lagoons and rivers, and rarely venture on the sea. The Indians living inland, on the other hand, are afraid of the sea and of the large lagoons, but they are perfectly at home in the bush, and they are very expert in navigating the river boats through the dangerous falls and rapids.

BRIDGES.—The liana bridges, which are met with in other parts of Central America, are unknown on the Mosquito Coast. The Miskito and Sumu occasionally make a crude bridge over a narrow creek by felling a tree across it. Canoes are used everywhere for the crossing of the streams.

TYPES OF CANOES.—Two sorts of dugout canoes are used on the Mosquito Coast. The "dori," or keeled canoe, is used to navigate the sea and lagoons, while the "pitpan," or flat-bottomed canoe, is employed on the rivers. The sea canoes are fast sailors, but somewhat "cranky." All these boats are hollowed out by means of the adze; the largest specimens, cut out of the solid tree, without any addition, may reach up to 5 feet beam and 40 feet in length.

PITPAN.—The "pitpan" is a long narrow boat with flat bottom, drawing but little water; it is therefore particularly fitted to navigate the shallow creeks of the interior which abound in rapids and falls. It glides noiselessly over the water and is easily steered, but it is very cranky and the slightest motion renders it liable to upset. It is therefore of no use on the sea. The pitpan has a square projecting bow and stern, like a small platform, large enough for a person to stand on. A hole is made in the bow through which a pole is thrust perpendicularly in the ground, to moor at river banks or at shoals. The pitpan is very thick bottomed, and for that reason may sustain very rough handling in hauling it over the rocks at rapids and falls.

The name "pitpan," which is in general use among the English-speaking population of eastern Central America, is taken from the Miskito word *pitban,* which means plaited. It is claimed by some



UPPER, MODEL OF "PITPAN," A FLAT-BOTTOMED CANOE FOR RIVER NAVIGATION; LOWER, MODEL OF "DORI," A KEELED CANOE FOR SEA AND LAGOON NAVIGATION

Sumu of lower Rio Escondido.

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that in former days the Miskito made rude canoes of plaited withes and made them waterproof by smearing a thin layer of clay over them. The Ladinos have corrupted the name into "pipante." The Miskito of the upper Rio Coco, who know no other boat but the pitpan, apply the name *dori* or *duri* nowadays to a keeled or unkeeled canoe, but among their kindred living near the sea this word is restricted to the former type. In all Sumu dialects both types are called *kuriñ*.

BATEAU.—A large form of pitpan, known by the French name "bateau," is generally used to transport cargo on the rivers of the Mosquito Coast. It is made by enlarging an ordinary pitpan. The latter is cut lengthwise in two halves of equal size; boards are then inserted, and the two parts are joined again. The sides are also raised. Such bateaux are generally manned by six paddlers and take about 5,000 pounds of freight. On some of the larger rivers there are operating some bateaux measuring up to 60 feet in length, 4 to 6 feet in width, and taking up to 100 Spanish quintals (say, 4,600 kg., or 10,145 English pounds) of merchandise. These are manned by from 10 to 12 Indians. A small cabin or "carroza" for the passengers is made immediately in front of the captain's seat, who steers the boat from the stern with the aid of a gigantic paddle. Such a cabin may be made of canvas cloth or merely of bamboo and large leaves; it affords protection from rain and sunshine.

MAKING OF A DUGOUT.—The manner of cutting trees and hollowing them out in former days was evidently that practiced in other parts of the New World before the arrival of the Spaniards. A ring was made with the stone ax through the bark and base of the tree, thus causing it to dry. Then fire was applied, and the wood was cut away as it charred. This process was repeated until finally the tree was felled. The hollowing out of the stem was also effected by alternately applying fire and the stone ax. Water was always kept at hand in order to quench the fire so as not to waste more wood than was necessary.

The width of a dugout is enlarged after it has been filled with water during a number of days; it may then easily be stretched and widened by inserting sticks. In former days rough dugout canoes used to be furnished by some of the Sumu tribes as a sort of tribute to the King of the Miskito.

TREES USED IN CANOE MAKING.—Following is a list of the various trees which are made into canoes by the Indians under consideration:

Mahogany (M. and S.: *pulu; Swietenia macrophylla* King) is the tree most commonly used, as it is very abundant on the Mosquito Coast; canoes from this wood are very durable, but rather heavy, and they are often attacked by boring worms.

Cedar (M.: *pulum, wiškur;* S.: *pulum, wiškur; Cedrela* sp.). Canoes hollowed out from this tree are very light and comparatively du-

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rable; the wood splits easily, but it has the advantage of not being subject to the attack of worms.

The guanacaste tree (M. and S.: *tuburus; Enterolobium cyclocarpum* Griseb.) is the one preferred by the Black Carib for the making of canoes; they allow the tree to "season" on the ground for a few months before starting to hollow it out. The wood is as light as cedar.

From the silk cotton tree (M.: *sisin;* S.: *panya, paniki; Ceiba pentandra* Gaertn.) very large dugouts may be made, but its light, whitish wood is not durable. Owing to certain superstitions regarding this tree, it is rarely used in boat making. (See Religion, etc.)

Saba (M.: *swa;* S.: *saba; Carapa guianensis* Aubl. or *Guarea caoba* C. DC.). The wood from this tree can scarcely be distinguished from mahogany in color and general appearance, but it is less durable.

Santa Maria (M. and S.: *krasa; Calophyllum brasiliense* var.) is seldom used, and it is suitable only for small canoes, as the tree does not attain such a great size as the aforementioned varieties. The wood is very durable, but it is rather heavy.

Emery (*Vochysia hondurensis* Sprague) is occasionally made into dugouts in the southern section of the Mosquito Coast. The wood resembles that of the silk cotton, but it is more lasting. It has, however, the disadvantage of soon becoming water-logged; besides, it rots immediately where a nail has been driven in.

The banak or cebo tree (M. and S.: *banak; Virola merendonis* ?) is a large tree which is also occasionally made into canoes.

CANOE POLES.—Canoes are propelled by long poles or by paddles. The poles (M.: *kahra, kahara;* T.: *kaha pan;* P.: *kaha pana, kuriñ pana;* U.: *pan sañ*) are used in shallow water with rapid current and hard bottom. In a small "cranky" pitpan this method of travel is not agreeable, especially to a newcomer; each time the boatmen, who stand up at the bow, push with their poles, the canoe begins to lurch as if it was going to upset. The captain sits at the stern and steers with a paddle.

PADDLES.—The paddles (M.: *kwahi;* T. and P.: *kawiñ;* U.: *wiñkna*) are broad bladed and made generally of mahogany or cedar. They measure from 4 to 5 feet in length and are often roughly polished. Larger paddles are also used, especially by the steersman, for the propelling of the bateaux. At its upper extremity the paddle terminates into an enlargement or "ear" (M.: *kyama;* S.: *tapani, tapaka*), which serves as grip to one hand, while the other hand grasps the paddle about 2 feet farther down. The paddles are moved vertically along the gunwale of the boat, the blade forcing back the water with main strength applied and very quick strokes.

SAILS.—In former days the Miskito are known to have employed sails (M.: *kwaltara;* T., P.: *asna nohni;* U.: *asna nohka*[38]) of native

[38] These names literally mean "large cloth."

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cotton, but this manner of facilitating navigation may have been of European introduction. To-day the Indians make sails from canvas or other imported cloth, and employ them on the sea, lagoons, and the larger rivers.

RAFTS.—In descending the rivers the Indians also make use of rafts (M.: *puhlak;* T., P.: *pala, dana;* U.: *lim*). They are made by tying a number of balsa stems or other light wood together with the aid of lianas or vegetable fibers. For lack of other light woods at hand, banana stems are sometimes used for this purpose, but these soon become water-logged. The stems are generally half submerged, but on large balsa rafts the natives descend from the interior with heavy cargoes of merchandise or livestock.

SKILL AND ENDURANCE OF THE INDIAN BOATMEN.—Both Miskito and Sumu are remarkable for their skill and endurance as boatmen. They work in a rhythm, and at each thrust all the paddles lightly strike the gunwale of the canoe together. From time to time, at a sign of the bowman, all the paddles are lashed simultaneously with the flat part of the blade upon the surface of the water.

The river Indians of the interior are very skillful in the management of the canoes through the falls and rapids of the streams. When proceeding upstream the boat is generally hauled through a side channel, or overland with the aid of strong withes or lianas [20] which are fastened to the hole in the bow. But a greater danger consists in "shooting" the rapids, the canoe rushing with great speed down the crooked channel oversown with projecting rocks. One Indian stands in the bow with a pole balanced in the middle, with which he touches the rocks scattered in the river, in order to guide the dashing pitpan and ward it off from these dangers. Every one is silent and watchful except for the short, sharp words of direction from the bowman to the captain, who is at the stern and assists with the timely stroke of the paddle. If the canoe gets swamped, the Indians jump overboard and, hanging on to it with one hand, they bail out the water with the aid of a calabash.

DOMESTICATION OF ANIMALS AND BIRDS

INDIGENOUS ANIMALS.—Many indigenous animals are tamed to keep as pets. Of these the most frequently seen are the capuchin or white-faced monkey (*Cebus* sp.), the spider monkey (*Ateles* sp.), the howling monkey (*Alouatta* sp., syn. *Mycetes* sp.), paca (*Cuniculus*

[20] Many trees are covered with such parasitic vines or lianas which climb up the stem to the branches, from which they hang freely down like ropes in sizes from very thin ones to others measuring up to 2 and even 3 inches in diameter. They are stronger than string or rope and resist the influence of the climate much better.

2: Kirchhoff E-4 (no date) 1948
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wore tight cotton bands below the knees and above the ankles. Today woven bands of glass beads are worn around the neck, wrists, and ankles. Straw hats are decorated with feathers and jaguar teeth (*Mosquito, Paya*). 301

Black paint is smeared over the body by the men (*Sumo, Mosquito, Paya*) as a decoration and for protection from insects. Geometrical designs are drawn in red paint, mainly by the women. The *Sumo, Mosquito,* and *Paya* tattooed geometrical designs upon the face, arms, and breast. The *Sumo* men made ornamental scars on their faces and chipped their teeth. All *Sumo* tribes except the *Bawihka* practiced head deformation. During infancy a folding flap of wood at the top of the cradle was tied firmly to the crown of the head. 302 [751] [53] 304

TRANSPORTATION

Loads are carried with a band passing over the head (women) or across the chest (men). Children are carried on the back in a blanket, the points of which are tied in front. 48 [855] [167]

The country has hunting trails but no roads. Most travel is done in dugout canoes propelled with poles and broad-bladed paddles. Rafts are used for down-river traffic. Large keeled canoes, often equipped with a sail, are used at sea. 501

MANUFACTURES

Basketry.—Crude baskets, mainly of wickerwork, are made chiefly for storage bins. Bark and silk grass fiber bags are very common. Bark fiber is used also to make tumplines, hammocks, and such. 285

Bark cloth.—Bark cloth is beaten out of ficus-tree bark with a grooved wooden mallet. 287

Weaving.—Cotton is spun on a spindle, which has a whorl and is rotated in a gourd. Coarse-textured but soft cotton cloth is woven on a two-beam loom. Thread was formerly dyed and designs were woven in the cloth. Sometimes feathers, particularly a fringe of white Muscovy duck down, were incorporated into the fabric. 286

Ceramics.—Pottery making has been described only from the *Sumo* and *Paya*, although pottery was formerly made by all tribes. Women model small vessels out of a lump of clay but build up large ones with coils. They polish them with a pebble, dry them for several days, and fire them in the open. Pottery types include jars about 4 feet (1.3 m.) high, various types of jugs, water jars, small bowls, griddles, and tobacco pipes. All vessels have a convex base. 323

Miscellaneous manufactures.—Metates are still used by the *Paya* and *Sumo*, and they have recently been adopted by the *Jicaque*, but the *Mosquito* are said no longer to use them. Metates are flat-topped boulders, which only rarely have a trimmed surface. Manos are round pebbles. 415

2: Kirchhoff E-4 (no date) 1948

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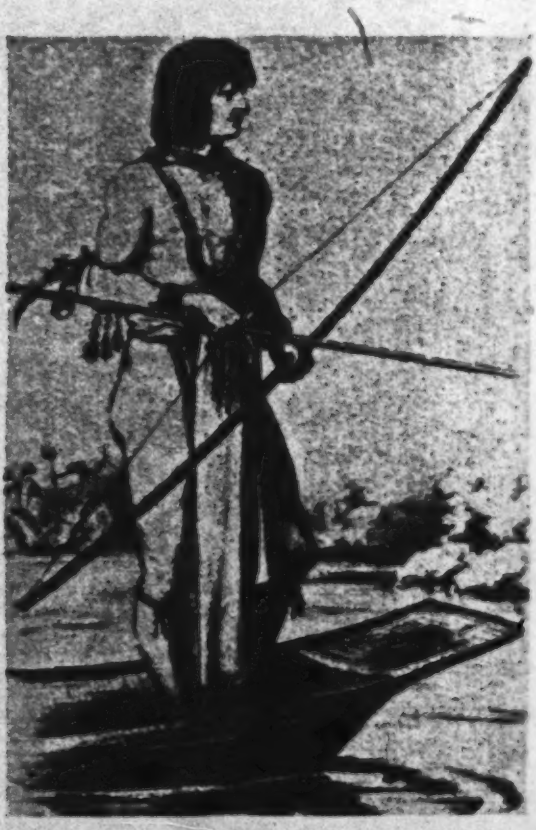

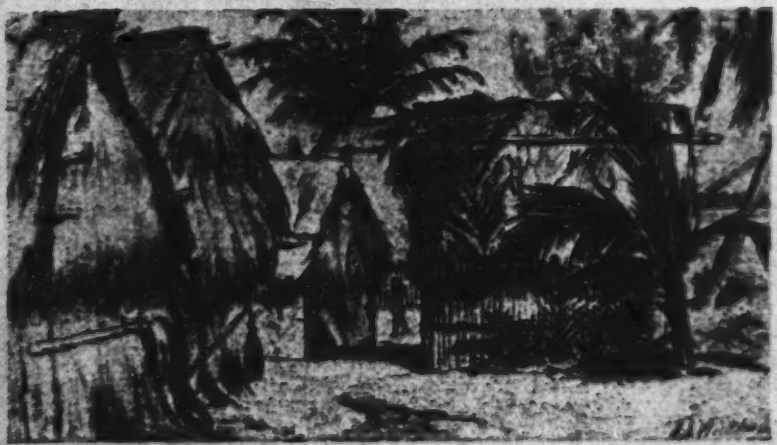

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PLATE 25.—Sumo and Mosquito Indians, Nicaragua. *Top:* Sumo man. *Bottom:* Mosquito village, Pearl Lagoon. (Courtesy American Museum of Natural History.)

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